



Solar Powered Roasting Spit

Written By: Saul Griffith



PARTS:

- [Sheet metal \(1\)](#)
For the fire pans and drippings trough. We used a 4'x8' sheet of 16-gauge mild steel.
- [Metal rods or pipes \(3\)](#)
To hold the pans and trough together
- [Adjustable sawhorses \(2\)](#)
To support the rotisserie, height-adjustable for temperature control (good idea, Dan)
- [Steel pipe \(1\)](#)
For the spit » Baling wire to hold the roast on
- [windshield wiper motor \(1\)](#)
To drive the spit
- [Solar panel \(1\)](#)
To power the rotisserie (thanks, Fenix International)
- [Bicycle wheel \(1\)](#)
To gear down the rotisserie speed
- [Steel pipe flange fitting \(1\)](#)
- [Scrap of wood or metal \(1\)](#)
To adapt the flange to your bike wheel
- [Eye bolts \(2\)](#)
Longer than pipe diameter
- [Various wood screws, nails, kite string, etc. \(1\)](#)

SUMMARY

Not only do I enjoy making things, I also love making food, so any opportunity that combines both is hard to pass up. Friends of mine were getting married, and being the beautiful and unusual people they are, planned a potluck wedding. I decided to do what I'd been hoping to

do for years: cook an entire animal on a spit. My wife and I had a small lamb and pig both spit-roasted at our wedding and it was a culinary highlight. How hard could it be to do myself?

A few friends volunteered to help. (thanks Pete Lynn, Dan Benoit, Joe Brock, and infinitely Mose O'Griffin). At the local farmer's market I met the lovely people from Fatted Calf, a San Francisco charcuterie. They were delighted to supply me with a lamb, and also recommended a great book, *The River Cottage Meat Book*, that included directions for making a spit and cooking on it.

It was the Thursday evening before the wedding when I went to pick up the lamb. The store was full of people buying sausage or some prosciutto. The store went dead quiet as the butcher, having just completed salting and preparing "the beast," brought it out slung over his shoulder. I think everyone in the shop came to me with some comment or story of shared excitement, jealousy, or encouragement. I knew at this point that despite having no idea what I was doing, this particular cooking experience was the type of making that brings communities and people together in a social experience.

That evening we elected to build the rotisserie spit that I thought would be the simplest, most easily transported, and easiest to store.

Step 1 — Solar Powered Roasting Spit



- Cut the sheet metal into three 8'-long pieces: two 18"-wide for the fire pans, and one 12"-wide for the drippings trough. Cut holes to thread the pipe through.
- Cut the metal pipes to size and assemble the 3 troughs. Bend the drippings trough deeply and the fire pans shallowly.

Step 2



- Bolt the eye bolts to the top of the sawhorses.
- Drill and tap the flange to match the hole spacing of the disc brake tabs on the bike hub.

Step 3



- Connect the flange and hub/wheel to the Schedule 40 pipe. To adapt the flange to your disc brake or hub, drill a disc of wood or metal to match the hole patterns of both parts.

Step 4



- Improve.

7 a.m. Wedding day — I get up, but have my 3-year-old son and 3-month-old puppy to look after. (My wife is baking the wedding cake.)

9 a.m. I'm now worried; I haven't made progress on anything, and from reading the book I'm estimating a 6- or 7-hour cooking time with a 5 p.m. eating target. Mose arrives. Sigh of relief.

9:05 We get the fire started in the 2 fire pans. We have enough old eucalyptus logs to cook a bunch of animals, even though it does consume a surprising amount of wood.

9:15 Start preparing the animal itself; we decide to figure out how to spin the animal once it's on

the spit.

9:20 Read hilarious section of River Cottage Meat Book: “Let’s not be delicate here, the pole goes in the a**hole and out the mouth.” Learned that there is indeed nothing delicate about cooking a whole animal.

9:25 We use too much baling wire and my hands are bleeding, but the lamb is tied to the pole. All I did to prepare the pipe was drill some holes for pushing wire through. You should think a lot more about how to keep the lamb from rolling around. Systems with orthogonal spikes seem very popular.

9:45 Lamb goes onto the spit above the coals. We’re cooking at last. Seven hours until dinner; if everything goes according to plan we’ll have minutes to spare!

9:55 We attempt to drive the spit at a recommended 1–3rpm by connecting solar cells through an inverter to produce 12V. There are problems with both the inverter and the drive mechanism.

10:05 Our friction drive made of a BMX bike peg against the bike tire doesn’t work well, and doesn’t give us enough gear reduction. The motor moves about 100rpm, and the friction drive is only about 20:1.

10:20 Switch to using the battery of a 1959 dune buggy. This turns out to be a bad idea but is awfully fun.

10:30 Back to solar panels, and with the arrival of Joe Brock we have a new idea: a capstan drive. It works perfectly. Fortunately I have brought a splicing tool and some old kite string that makes an excellent belt. We just wrap a few turns of the string around the motor axle.

10:40 Everything now appears to be working. The lamb is moving at 2–3rpm and the only thing to do now is tend the fire. And baste the animal. And drink.

4:40 p.m. Still basting and drinking, but it’s now time to go watch our friends get married. Quickly check the temperature with a meat thermometer: 140°F deep in the thigh. Perfect.

5:10 They’re married! I’m ready to carve. So is Mose. People line up, and it’s done. I can’t believe 75 pounds of animal can disappear so quickly. Sometimes making is solitary, sometimes it’s social. Both are beautiful things.

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